FBI Friction Ridge Discipline Procedures for Validation, Verification, and Approval of Technical Procedures, Equipment, and Software

1 Purpose/Scope

This document establishes validation, verification, and approval procedures for Friction Ridge Discipline technical procedures, equipment, and software. These procedures apply to personnel who address new or modified technical procedures, equipment and software under consideration for use in casework by the FBI Laboratory Friction Ridge Discipline. The Technical Leader will determine what technical procedures, equipment and software will be addressed under this document.

Only software used by the FBI Laboratory Friction Ridge Discipline that meets the requirements listed below are covered under this document. All other software will not be tested.

- Software that may significantly and adversely affect the integrity of friction ridge print images or supporting data (e.g., digital history),
- Software that produces reportable statistical conclusions based on friction ridge print information,
- Next Generation Identification, including any Criminal Justice Information Services Division provided interface programs, is maintained and tested by the Criminal Justice Information Services Division who retains records of tests. The FBI Laboratory Friction Ridge Discipline will test major upgrades to the search algorithm and other upgrades deemed necessary by the Technical Leader.
- All other software where the Technical Leader decides testing is necessary.

2 Procedures

2.1 Validation

Technical procedures, equipment, or software in the FBI Laboratory Friction Ridge Discipline originating in the FBI Laboratory will follow the FBI Laboratory Operations Manual, Practices for Developing Methods and Validating Technical Procedures.

2.2 Equipment and Software Checks

New acquisition of already approved equipment or software will undergo a check to ensure the item is properly functioning. Additionally, equipment or software whose effect on casework is low risk (e.g., marking software, light sources, printers or cameras) may also be addressed with a check. A record of the check will be retained. Format or requirements for the record(s) will be

established by the Validation Program Manager and checks will be approved by either the Validation Program Manager or the Technical Leader.

Negligible equipment or software does not need a recorded equipment or software check (e.g., tweezers, ambient light lamps, magnifying glasses, word processing software, virus software). Additionally, maintenance or performance checks of existing equipment or software do not fall under these requirements.

2.3 Verification

All other technical procedures, equipment and software not covered in Sections 2.1 and 2.2 will be addressed as described below.

2.3.1 Preliminary Material

External literature, internal research (e.g., testing and evaluation), and/or knowledge of the procedure(s), software, and/or equipment will be used to determine the theoretical basis, limitations, critical aspects, and the conditions under which accurate results can be obtained. Relevant peer-reviewed literature, internal research, or external research used for the study will be retained or referenced within the records.

2.3.2 Plan

A plan will describe the steps and expectations for the verification and will be as detailed as needed for the project under consideration.

A plan will be written with input from the Validation Program Manager and then technically reviewed and approved by the Technical Leader before the process begins. Plans can be modified after implementation and major updates must be approved by the Technical Leader.

The plan will use samples appropriate to the procedures, software, or equipment being tested.

2.3.3 Completion of Testing

Any verifications that are completed at a Laboratory site and are intended to be used at the second Laboratory site must also be tested at that site (e.g., a procedure approved for Huntsville site must also be tested at Quantico before used in Quantico). The method to test at the second Laboratory site will be included with the original plan.

If testing was unsuccessful, additional research may be conducted for improvement and testing may be redone but a new plan will be generated.

Upon completion of testing, a final report will be generated to detail the findings of the verification.

The appropriate Unit Chief(s) and the Technical Leader will review and approve the completed verification (to include all reports and summaries).

Level two documents will be generated and/or updated as needed. The technical procedure, equipment or software cannot be used in casework until the appropriate document is updated or issued.

2.3.4 Records and Competency

The Validation Program Manager will ensure that all records, to include any plans and reports, are compiled and retained. All records must be sufficient to allow replication of the study by another qualified expert. Any other relevant records such as notes or logs will be retained.

Personnel in the affected units will be notified when a new or modified version of an existing procedure(s), software, and/or equipment has been approved for use and of any required training or competency tests. The Technical Leader will determine if competency testing is required, how competency will be tested and which personnel will be trained. The method of training will best suit the information to be provided.

Competency tests will assess an individual's ability to use the procedure(s), software, and/or equipment in a laboratory setting. Record of the completion of the test will be retained and any samples generated during the test will not be retained.

Personnel involved in the testing process may be signed off by the Technical Leader, as they demonstrated competency through the study or research. Documentation of the decision and personnel approval will be retained.

2.4 After Implementation

Follow up will be performed on any issues that occur after implementation of the new procedure(s), software, and/or equipment.

2.5 Offsite Examinations

When processing of physical evidence occurs at a temporary site, such as a partner laboratory or crime scene, all chemicals, reagents or equipment are normally brought from the Laboratory. Control testing is done at the site and recorded in the case record. If the relevant items do not come from the Laboratory, the appropriate testing is conducted based on the technical procedure, equipment or software involved.

3 References

FBI Laboratory Operations Manual, Practices for Developing Methods and Validating Technical Procedures. Federal Bureau of Investigation, Laboratory Division. Latest Revision.

FBI Laboratory Quality Assurance Manual. Federal Bureau of Investigation, Laboratory Division. Latest Revision.

ISO/IEC 17025 - General Requirements for the Competence of Testing and Calibration Laboratories, International Organization for Standardization, Geneva, Switzerland, 2017.

Scientific Working Group of Friction Ridge Analysis, Study and Technology, Standard for the Validation and Performance Review of Friction Ridge Impression Development and Examination Techniques (Latent/Tenprint). Latest Version.

Rev. #	Issue Date	History
3	08/21/19	Title modified. "Acceptance" and "Internal Validation" changed to "verification" in document. Section 1, "development" added. Section 2, software added to scope. Section 3.1.1, updated to include only method development and validation. Section 3.1.2, added "or verified" and allowance for Technical Leader. Section 3.1.3, added "or verification", added software throughout section, to include examples, modified approvals, and added last sentence. Section 3.1.4, added "or verification". Section 3.2, expanded to software used by unit, added "or verified", expanded to friction ridge prints and included supporting data. Additionally, removed commercial off the shelf software and added software in general use. Section 3.2.1, updated testing requirements. Section 3.3, expanded to include method development and verification and modify expectations for use of Laboratory document. Section 3.3.1 through Section 3.5.4, expanded to include Method Development and verification. Section 3.3.3.1, updated to include verification and method development as well as better mirror the Laboratory document. Section 3.3.3.2 through Section 3.3.3.3, expanded to include method development and verification. Section 3.3.4 through Section 3.3.4.2, records and competency further clarified for validations and verifications and intent of testing. Section 3.3.5, Heading changed.
4	07/15/21	Latent Print Units changed to Friction Ridge Discipline throughout document. Minor wording, grammar, and punctuation changes throughout. Appendix A removed. Section 1 and Section 2 combined into single Section and updated. Remaining sections in document reorganized, streamlined, and updated.

Approval

Redact - Signatures on File

Friction Ridge Discipline
Technical Leader Date: 07/14/2021

Latent Print Operations
Unit Chief Date: 07/14/2021

Latent Print Support Unit
Chief Date: 07/14/2021

Scientific and Biometrics
Analysis Unit Chief Date: 07/14/2021

QA Approval

Quality Manager Date: 07/14/2021